



**Linda S. Adams**  
Secretary for  
Environmental Protection

# Air Resources Board

**Mary D. Nichols, Chairman**  
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El Monte, California 91731 [www.arb.ca.gov](http://www.arb.ca.gov)



**Arnold Schwarzenegger**  
Governor

March 7, 2008

Mr. Glenn Luksik  
Caterpillar Emissions Solutions  
P.O. Box 610  
Route 29 & Rench Road  
Mail Drop AC 6146  
Mossville, Illinois 61552

Reference No. 08-661-096

Dear Mr. Luksik:

Using the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines* (Procedure), the Air Resources Board (ARB) previously granted the Caterpillar Diesel Particulate Filter (DPF) a conditional verification for certain off-road diesel engines. This conditional verification letter updates and supersedes the first letter (RAS-08-12), and in particular expands the list of approved engine families to include those with at least one model that meets the stated power rating limitations.

Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, ARB hereby finds that the Caterpillar DPF reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater than or equal to an 85 percent reduction). ARB also finds that the Caterpillar DPF satisfactorily completed at least 33 percent of the durability demonstration period for off-road diesel engines. Accordingly, ARB determines that the system merits conditional verification and, subject to the terms and conditions specified below, classifies the Caterpillar DPF as a Level 3 system for rubber-tired off-road applications that use diesel engines from the engine families listed in Attachment 1.

The aforementioned conditional verification is subject to the following terms and conditions:

- The Caterpillar DPF is conditionally verified for a period not to exceed three years from the date of January 22, 2008. For the Caterpillar DPF to be considered for full verification, Caterpillar must complete all remaining requirements no later than January 22, 2011, as specified in the letter RAS-08-11.

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.*

California Environmental Protection Agency

- Conditional verification is equivalent to verification for the purposes of satisfying the requirements of in-use emission control regulations.
- The engine must be certified to a PM emission level equal to or less than 0.2 grams per brake horsepower-hour.
- The engine must be model year 2008 or older.
- The engine must have a maximum power output rating of at least 175 horsepower and less than or equal to 300 horsepower. Note that not all models of all engine families listed in Attachment 1 meet this requirement.
- The application must have a duty cycle with an average exhaust temperature greater than 240 degrees Celsius for at least 40 percent of the operating cycle.
- The application must have rubber tires.
- The engine must be four-stroke.
- The engine must not employ exhaust gas recirculation.
- The engine must not have a pre-existing diesel particulate filter from the original equipment manufacturer.
- The engine can be mechanically or electronically controlled.
- The engine can be turbocharged or naturally aspirated.
- The engine must be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lubricating oil, or other oil, must not be mixed with the fuel.
- The product must not be operated with fuel additives, as defined in section 2701 of Title 13, of the California Code of Regulations (CCR), unless explicitly verified for use with the fuel additive(s).
- The product must not be used with any other systems or engine modifications without ARB and manufacturer approval.
- The other terms and conditions specified below.

It is also ordered and resolved that installation of the Caterpillar DPF, manufactured by Caterpillar Inc, 100 North Adams Street, Peoria, Illinois 61629, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the Caterpillar DPF is exempt from the prohibitions in section 27156 of the Vehicle Code for installation on off-road equipment using engines from the families listed in Attachment 1.

This exemption is only valid provided the engines meet the aforementioned conditions.

ARB reserves the right in the future to review this conditional verification letter and the exemption provided herein to assure that the exempted and conditionally verified add-on or modified part continues to meet the standards and procedures of Title 13, sections 2222, et seq and sections 2700 through 2710, of the CCR.

The Caterpillar DPF consists of a diesel oxidation catalyst followed by a diesel particulate filter, and a backpressure and temperature monitor with a remote display module. The major components of the Caterpillar DPF are identified in Attachment 2. A schematic of the approved product and engine labels is shown in Attachment 3.

No changes are permitted to the device. ARB must be notified, in writing, of any changes to any part of the Caterpillar DPF. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this conditional verification.

Changes made to the design or operating conditions of the Caterpillar DPF, as exempted by ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this conditional verification.

Marketing of the Caterpillar DPF using identification other than that shown in this conditional verification letter or for an application other than that listed in this conditional verification letter shall be prohibited unless prior approval is obtained from ARB.

This conditional verification shall not apply to any Caterpillar DPF advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

ARB estimates that the Caterpillar DPF has no significant effect on average fuel economy.

As specified in the Procedure, ARB assigns each diesel emission control strategy a family name. The designated family name for the conditional verification as outlined above is:

**CA/CAT/2008/PM3/N00/OFF/DPF01.**

Additionally, as stated in the Procedure, Caterpillar is responsible for honoring the required warranty (section 2707) and conducting in-use compliance testing (section 2709).

This conditional verification is valid provided that the diesel fuel used in conjunction with the device complies with Title 13, CCR, sections 2281 and 2282, and if biodiesel is used, the biodiesel blend shall be 20 percent or less subject to the following conditions:

- The biodiesel portion of the blend complies with the American Society for Testing and Materials (ASTM) specification D6751 applicable for 15 ppm sulfur content;

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- The diesel fuel portion of the blend complies with Title 13, CCR, sections 2281 and 2282; and
- The use of biodiesel applies to devices verified to reduce only diesel particulate matter.

Other alternative diesel fuels such as, but not limited to, ethanol diesel blends and water emulsified diesel fuel are excluded from this conditional verification.

Systems conditionally verified in this letter shall conform to all applicable California emissions regulations.

This conditional verification does not release Caterpillar from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this conditional verification.

Thank you for participating in ARB's diesel emission control strategy verification program. If you have any questions or comments, please contact Ms. Shawn Daley, Manager, at (626) 575-6972 or by email to [sdaley@arb.ca.gov](mailto:sdaley@arb.ca.gov).

Sincerely,

/s/

Robert H. Cross, Chief  
Mobile Source Control Division

Attachment 1: ARB-Approved Engine Families for the Caterpillar DPF

Attachment 2: Parts List for the Caterpillar DPF

Attachment 3: Label for the Caterpillar DPF

cc: Ms. Shawn Daley, Manager  
Retrofit Assessment Section